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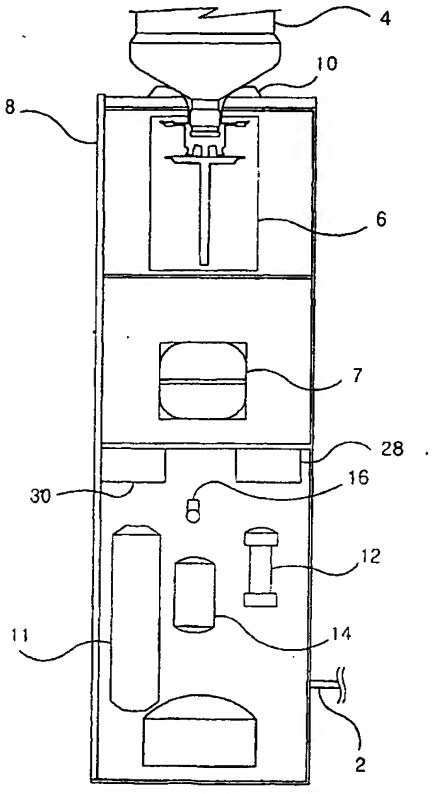
(54) Title: WET TOWEL MANUFACTURING MACHINE WITH PURIFIED WATER DISPENSING FUNCTION



(57) Abstract: The object of this invention is to provide a wet towel manufacturing machine with a variety of functions, such as a purified water dispensing function and/or an ice making function. This machine has a plurality of functional units housed in a casing (8). The functional units include a water supplying unit, a water filtering unit, a purified water storage tank (6), a heating/cooling unit for heating or cooling purified water fed from the tank, a towel feeding unit, and a towel cutting unit. The machine also includes a water spraying unit (26) for spraying purified water to the cut towels, a towel dispensing port (34), a water dispensing valve (36) for dispensing purified water from the heating/cooling unit, and a control unit (30) controlling the operation of the above elements. A control panel (32) is provided at the front wall of the casing (8).

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WET TOWEL MANUFACTURING MACHINE WITH PURIFIED WATER DISPENSING FUNCTION

Technical Field

The present invention relates generally to a wet towel manufacturing machine with a purified water dispensing function, and more particularly, to a wet towel manufacturing machine, which is designed to have a variety of functions, such as a purified water dispensing function and/ or an ice making function, thus being economical and convenient to use, and which is designed to have different water sources corresponding to the various functions, respectively, thus being sanitary.

Background Art

This invention provides a wet towel manufacturing machine combined with a water purifier. This invention provides a wet towel manufacturing machine with a variety of functions of ice-making and dispensing purified water to a user.

It is common that a wet towel as well as potable water is offered to customers at many restaurants. The wet towel is made of cotton or tissue. In this case, the towel made of cotton is reusable by washing. The tissue for the wet towels includes paper and non-woven fabric. It will be later referred to as a wet towel regardless of its material.

A conventional wet towel manufacturing machine automatically cuts a towel made of paper or non-woven fabric, and then wets the towel so as to offer a wet towel to a user. The conventional wet towel manufacturing machine has been widely used at restaurants, cabins, accommodations, etc.

Meanwhile, the water purifier is classified into two types. That is, one

type of water purifier uses tap water as source water, whereas the other type of water purifier uses water contained in a water bottle as source water. But, there have been more widely used the water purifiers using water bottles, because it is known to people that water contained in water bottles is more sanitary than tap water.

Further, ice to be used at restaurants is made in ice-makers or refrigerators which are located in the restaurants. The ice is used in food preparation or supplied to customers.

As such, the ice-maker or the refrigerator, the water purifier, and the wet towel manufacturing machine must be separately installed to supply ice, purified water and wet towels to customers at restaurants. Thus, the cost of purchasing an ice-maker or a refrigerator, a water purifier, and a wet towel manufacturing machine is undesirably high, and besides, the space for customers is reduced due to many machines placed in the restaurants.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide a wet towel manufacturing machine with a variety of functions, such as an ice making function and a purified water dispensing function.

Another object of the present invention is to provide a wet towel manufacturing machine, which is designed to have different water sources corresponding to various functions, respectively, thus being sanitary and economical.

In order to accomplish the above object, the present invention provides a wet towel manufacturing machine with a purified water dispensing function, comprising a water supplying unit for selectively supplying water to the machine from a service water tap or a water bottle, with tap water supplied to the machine

through a pipe provided at a wall of a machine's casing and the water bottle seated on the top wall of the casing, a potable water filtering unit for filtering water supplied from the water bottle and a towel wetting water filtering unit for filtering water supplied the water tap, a water storage tank divided into a potable water chamber and a towel wetting water chamber, the potable water chamber storing water supplied from the water bottle through the potable water filtering unit and the towel wetting water chamber storing water supplied from the tap water through the towel wetting water filtering unit, a potable water heating and/or cooling unit and a towel wetting water heating and/or cooling unit for heating or cooling water contained in the potable water chamber and towel wetting water chamber, respectively, a towel feeding unit for feeding a towel which is made of non-woven fabric or tissue and is rolled in the form of a scroll, a towel cutting unit for cutting the towel fed from the towel feeding unit to form towel pieces having a predetermined length, a water spraying unit for spraying water fed from the towel wetting water heating and/or cooling unit to the cut towel pieces, a towel dispensing port for dispensing the wet towels to the outside, a water dispensing valve for dispensing potable water fed from the potable water heating and/or cooling unit, a control unit set inside the casing and controlling the operation of the machine, and a control panel provided at the front wall of the casing.

Furthermore, the wet towel manufacturing machine of this invention comprises an ice-making unit for making ice using water contained in the potable water chamber.

Brief Description of the Drawings

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a sectional view showing a water purifying part of a wet towel

manufacturing machine according to the preferred embodiment of this invention;

Fig. 2 is a sectional view of a wet towel manufacturing part of the wet towel manufacturing machine according to the preferred embodiment of this invention; and

Fig. 3 is a perspective view of the wet towel manufacturing machine according to the preferred embodiment of this invention.

Best Mode for Carrying Out the Invention

Reference should now be made to the drawings, in which the same reference numerals are used throughout the different drawings to designate the same or similar components.

Fig. 1 is a sectional view showing a water purifying part of a wet towel manufacturing machine according to the preferred embodiment of this invention. Fig. 2 is a sectional view of a wet towel manufacturing part of the wet towel manufacturing machine according to the preferred embodiment of this invention.

As shown in the drawings, water is supplied from two water sources to a water supplying unit. Of the two water sources, a first water source is a service water tap, and is supplied to the water supplying unit through a pipe 2 connected to the first water source. A second water source is a water bottle 4. Water passes through the pipe 2 connected to the first water source, such as a water tap, into a water storage tank 6. At this time, water may be processed through a water filtering process as necessary. A water bottle seat 10 is provided at the top wall of a casing 8 such that the water bottle 4 is seated on the seat 10.

The second water source is different from the first water source, and may be defined as sterilized water, such as purified water, or commercially available potable water.

The water contained in the water bottle 4, the second water source, passes through a filtering means, and flows into the water storage tank 6. Since it is

important to filter water, various types of water filtering systems may be applied to the wet towel manufacturing machine of this invention. According to the preferred embodiment of this invention, the wet towel manufacturing machine has an ultraviolet sterilizer 12. The water from such a water filtering system is raised by a pump 14 and stored in the water storage tank 6, and may be used for manufacturing a wet towel.

The water storage tank 6 is divided into a potable water chamber and a towel wetting water chamber. In this case, the potable water chamber stores water supplied from the second water source, while the towel wetting water chamber stores water fed from the first source.

Further, a water level gauge is mounted in the water storage tank 6 to maintain a predetermined volume of water in the tank 6. When the water level exceeds a predetermined level, the level gauge generates a signal in the form of electricity so as to stop the pump 14 and close a solenoid valve 16. On the other hand, when the volume of water is lowered below a predetermined level, the pump 14 is operated again so as to replenish water.

Cold water is contained in the potable water chamber and the towel wetting water chamber. The cold water in the two chambers is separately heated by a potable water heating and/or cooling unit and a towel wetting water heating and/or cooling unit, and then is stored in a hot water tank 7. In this case, the hot water tank 7 is installed under the water storage tank 6, and divided into two sections for storing the heated potable water and heated towel wetting water, respectively. The potable water heating and/or cooling unit is used for heating and/or cooling water contained in the potable water chamber, while the towel wetting water heating and/or cooling unit is used for heating and/or cooling water contained in the towel wetting water chamber. In this case, each of two the heating and/or cooling units usually consists of a refrigerating system and an electric heater. Since the water heating and/or cooling temperature must be changed depending on the intended use of water, a temperature control means is

provided in the machine. A user may set a desired temperature of water sprayed to the towel by means of a control panel 32 (see, Fig. 3).

In the wet towel manufacturing part, a towel feeding unit includes a towel casing 20 and a drive unit 22. The towel casing 20 holds a rolled towel 18, and the drive unit 22 rotates the rolled towel 18 so as to draw the towel 18 from the towel casing 20. A towel cutting unit is installed at a position around a towel rolling unit 24 which is set at a position under the drive unit 22, and cuts the towel 18 into pieces having a predetermined length. The wet towel manufacturing part also has a water spraying unit 26, such as a nozzle, for spraying water to the cut towels. The water from the water storage tank 6 is also fed to the water spraying unit 26. The produced wet towels are dispensed through a towel dispensing port 34 (see, Fig. 3) as they are rolled or folded. The towel rolling unit 24 and the towel dispensing port 34 are also included in a towel feeding unit.

The towel 18 is made of non-woven fabric or paper, and is rolled in the form of a scroll, and is rotatably held in the towel casing 20. A user can preset the length of the towel as desired. The wet towel is dispensed as it is rolled or folded by the towel rolling unit 24. Such a construction is equal to those of the conventional wet water manufacturing machines, so it will not be described herein in detail.

Further, this machine may be provided with an ice-making unit 28. The ice-making unit 28 makes ice cubes using water contained in the potable water chamber of the water storage tank 6. Preferably, the ice cubes have a size of about 10mm length in each side and are supplied to a user by a predetermined amount at every dispensing time. The ice cubes made by the ice-making unit 28 are maintained in an ice storage tank, and are supplied to a user by a predetermined amount in response to a signal outputted from a control unit 30.

The control unit 30 controls the water temperature and the supply of water which is required to manufacture wet towels, to supply potable water, or to make ice, and consists of a control circuit with a microcomputer. A small capacity

pump and a solenoid valve serving as means for supplying water to desired elements, are installed at a pipe line which connects the elements to each other, and are operated in response to signals from the control unit 30.

Fig. 3 is a perspective view of the wet towel manufacturing machine according to the preferred embodiment of this invention.

The control panel 32, the towel dispensing port 34, and the water dispensing valve 36 are provided at the front wall of the casing 8. An ice dispensing port 38 is provided at a position under the above elements 32, 34 and 36. The casing 8 has a height suitable for allowing users to use the machine without any difficulty. The machine may be provided with a digital display 40 for displaying the water temperature, the consumption of water and rolled towel, etc.

A user can preset a desired water temperature by manipulating the control panel 32, and adjust the length of wet towels. The water dispensing valve 36 has the same construction as that of a water dispensing valve of a conventional water purifier. Two water dispensing valves 36 are provided on this machine so as to dispense hot water and cold water, respectively. A recess 42 is formed at the front wall of the casing 8. When it is required to drink water, a user first puts a cup in the recess 42, and operates one of the two valves 36. A water drain container 44 is installed at a position under the water dispensing valve 36, and receives water therein in the case where water overflows cup. The water bottle seat 10 and a cover 46 are provided on the top wall of the casing 8. A user puts a new rolled towel 18 in the machine after opening the cover 46 when an existing rolled towel 18 is completely used up.

Industrial Applicability

Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that

various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

For example, positions of the elements and a water bottle seating position may be appropriately changed. In addition, a towel dispensing port may be integrated with an ice dispensing port so as to form a single dispensing port. Furthermore, the machine of this invention may be manufactured in the form of a vending machine which dispenses wet towels or ice cubes only when inserting one or more coins into the machine.

As described above, the present invention provides a wet towel manufacturing machine with a variety of functions, such as a purified water dispensing function and/ or an ice making function. Thus, it is convenient to use and the high expenses for purchasing the separate machines are not necessary, so the users save money. In addition, a large space is not required for this machine, thus being capable of optimizing space utility. Further, according to this invention, commercial bottled water is used as potable water whereas the water fed from a service water tap is used to manufacture wet towels, thus being sanitary, and besides, the water temperature can be controlled as desired, thus satisfying various user's demands.

Claims

1. A wet towel manufacturing machine with a purified water dispensing function, comprising:

a first water supply part having connecting means, such as a pipe, said connecting means provided at a wall of a casing of said machine and connected to a first water source;

a second water supply part having a water bottle, said water bottle used as a second water source and seated on a top wall of the casing;

a water supplying unit for selectively supplying water to the machine from the first water source or the second water source;

a water filtering unit for filtering water supplied from the first water source and/or the second water source;

a water storage tank divided into a potable water chamber and a towel wetting water chamber, said potable water chamber storing water supplied from the second water source through the water filtering unit and said towel wetting water chamber storing water supplied from the first water source through the water filtering unit;

a potable water heating and/or cooling unit and a towel wetting water heating and/or cooling unit for heating or cooling water contained in the potable water chamber and towel wetting water chamber, respectively;

a towel feeding unit for feeding a towel;

a towel cutting unit for cutting the towel fed from the towel feeding unit to form towel pieces having a predetermined length;

a water spraying unit for spraying water fed from said towel wetting water heating and/or cooling unit to the cut towel pieces;

a towel dispensing port for dispensing the wet towels to the outside;

a water dispensing valve for dispensing potable water fed from said potable water heating and/or cooling unit;

a control unit set inside the casing and controlling an operation of said machine; and

a control panel provided at a front wall of the casing.

2. The wet towel manufacturing machine according to claim 1, further comprising an ice-making unit for making ice using water contained in said potable water chamber.

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Drawing

fig. 1

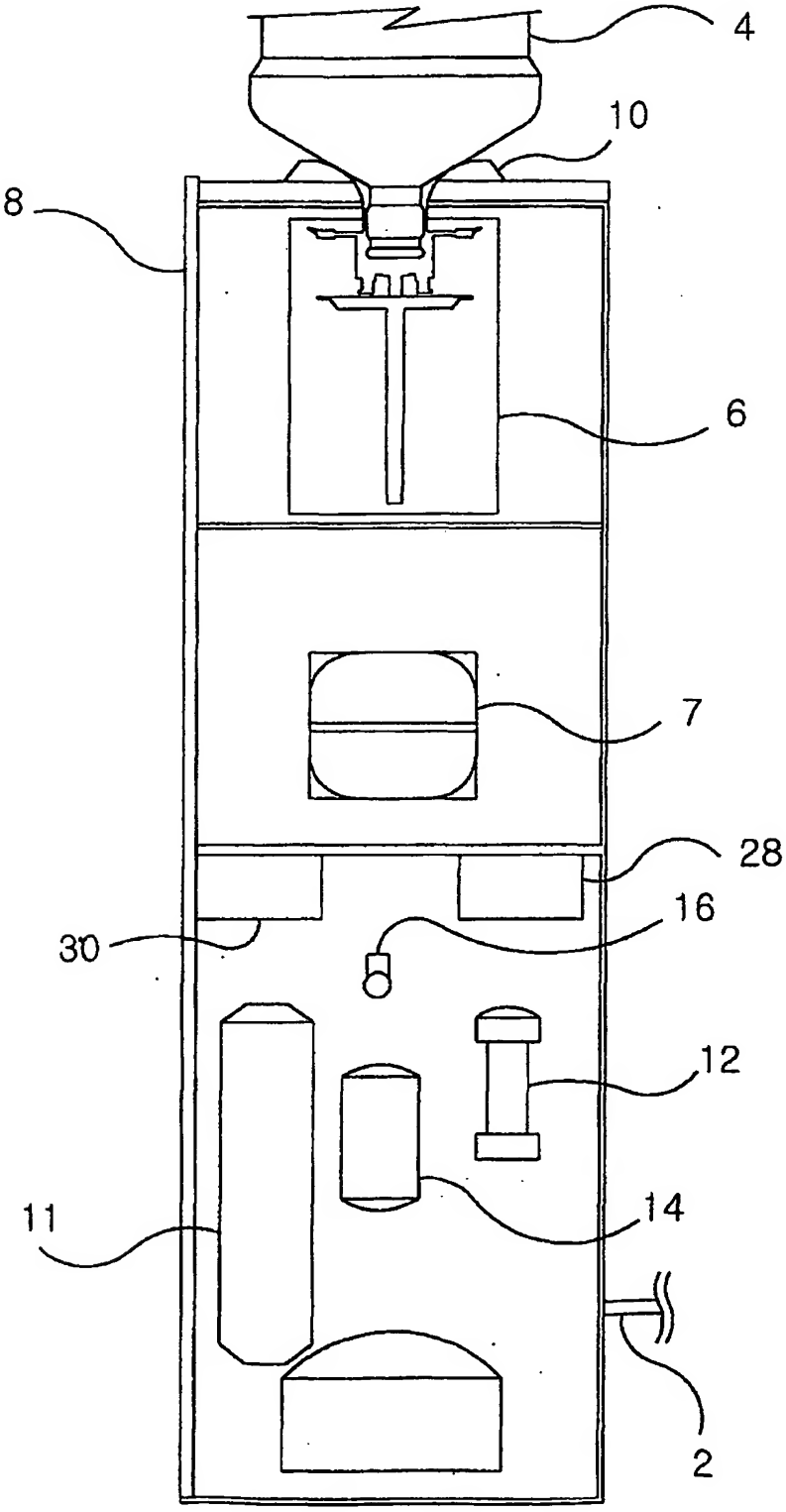
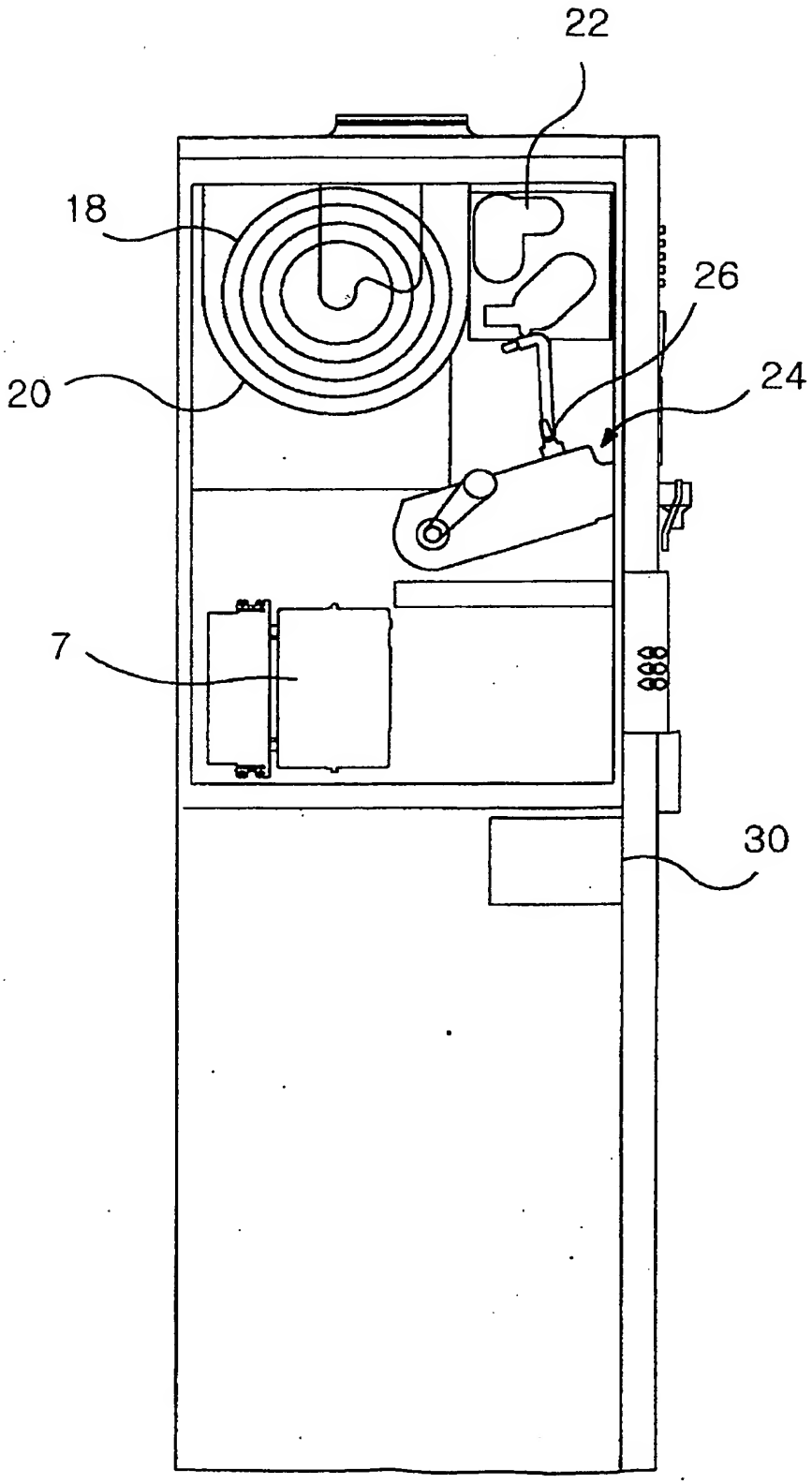


Fig. 2



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/00455

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 B01D 35/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01D, A47K, B08B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, IPC as above
JP, IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KU 99-7561 A (C.N.G.LTD.,) 25. FEBRUARY. 1999 See the whole document	1-2
Y	KU 99-41499 A (DAEWOO ELECTRIC LTD.,) 15. DECEMBER. 1999 See the whole document	1-2
Y	US 5,375,616 A (Chi-Shan Chen) 27. DECEMBER. 1994 See the whole document	1-2
Y	KR 20-180460 Y1 (JUNG,NAK-WON) 17. FEBRUARY. 2000 See the whole document	1-2
E	KP 2001-48075 A (KIM,KYU-HWAN) 15. JUNE. 2001 See the whole document	1-2

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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